

November 5, 2010

Lecher Consulting Enterprises

626 Frogger Way
Bend, OR 97701

Mary Standards

Vice President of Operations

Great American Paint Company

1600 Greenwood Blvd.
Bend, OR 97701

Dear Ms. Standards:

Having received your inquiry regarding alternative procedures for recycling acetone, it is encouraging to report a simple method that proved effective in the purification of this particular chemical.

Distillation is a technique this organization uses to remove impurities from a variety of substances. This process first involves vaporization of a contaminated mixture through heating the substance. As the mixture is heated, there is separation of impurities from the vapors once visible in a large boiling flask. Those vapors are then condensed back to liquid form to be collected in a smaller flask. This process is referred to as a vaporization-condensation cycle.

A simple distillation apparatus was utilized to perform the experimental procedure. A 100mL round bottom flask was immersed in water and brought to a boil with 40.5mL of impure acetone. Upon reaching boiling point, vaporization of pure acetone was contained in a three-way adapter then collected in a condenser. As the vapors reached the condenser, water is used as a cold surface to return pure acetone back to liquid form. Following condensation, a distilling adapter returns a pure liquid acetone to a 50mL flask.

Care must be taken during these procedures to avoid contamination by impurities. Therefore, it is important to not boil off the entire amount of solution in the large boiling flask. In order to verify purification in the collection flask, the boiling point should match an established range of temperature for acetone. Secondly, infrared spectroscopy is another laboratory technique used to confirm the purity of the substance. Finally, an equation can be implemented to determine the amount of pure acetone recovered through measurements taken before and after the cycle

If you have any further questions, please contact me at (541) 383-2067.

Thank you,

Tyrone Hayes, ***Chemical Analyst***

